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How does China become a new energy champion?

> *China's competitive advantage in new energy is massive. For China, developing new energy is a multi-year task. For investors, there could be a lot of growth opportunities to seize.*

As the world's factory, China is known as the largest consumer of coal. However, in the past decade, it has also become a global champion in new energy sectors, such as solar energy, wind energy, and electric vehicles. China is at the same time the biggest investor in new energy industries and the biggest player on the global supply chain of new energy devices and products. In 2021 it invested $380 billion in new energy (vs. $235 billion by North America), more than any other country. China has proven its capability to build solar and wind plants at a massive scale and rapid speed.

After years of development, leading companies from different new energy sectors have appeared in China and have started to expand into global markets. In 2022, as Europe faced an energy shortage, Chinese new energy companies expanded their global footprints at a faster pace.

DEFINITION

The new energy industry is broad and encompasses:

- Companies that provide technologies and products to generate new energy (renewable energy), such as solar photovoltaic modules.
- Companies that manufacture equipment or components needed for new energy generation, such as solar inverters.
- Companies that provide end-products or services that consume or store new energy, such as electric vehicles.

NEW ENERGY INDUSTRIES ARE BECOMING STRATEGIC FOR CHINA

China is developing new energy industries out of two strategic concerns: energy self-sufficiency, and manufacturing transition from lower-end to higher-end producers.

- **New energy for energy self-sufficiency.** Developing new energy is necessary for China to reduce dependency on external energy resources. China is rich in coal resources but very dependent on imports of crude oil and gas, due to lack of domestic supply. China's external dependence on crude oil and natural gas was around 72% and 44%, respectively, in 2021. The domestic energy supply cannot fully meet the demand of the world's factory, even for coal resources. With energy prices coming up and geopolitical tensions intensified, energy self-sufficiency is of greater importance to China.
- **New energy for the manufacturing transition.** While lower-end manufacturing capacity is gradually moving to Southeast Asia, China has been seeking to transition from lower-end producers to higher-end producers. Photovoltaic (PV) modules and electric vehicles (EV) are paving the way to a new manufacturing landscape. Despite decades of efforts to promote local car brands, China hasn't succeeded in becoming a leader in conventional (petrol/diesel) cars, not even on its domestic market. But since engines and gearboxes, the key components for conventional cars, are not used in EVs, China sees an opportunity to break the dominance of prestigious multi-national brands. The results are already visible in big cities like Shanghai. In November 2022, one of every two cars sold in Shanghai was an electric car. Discussions among young generation of buyers are no longer to choose "BMW or Audi", but "BYD or Tesla". As of September 2022, BYD (a Chinese brand) was leading the Chinese EV market with ~29% market share, SAIC (Chinese brand) and Tesla (manufactured in its Gigafactory in China) followed, with 9% and 8% market share, respectively.

SOLAR PHOTOVOLTAIC (PV) AND ELECTRIC VEHICLES (EV) ARE THE TWO KEY PILLARS OF THE NEW ENERGY INDUSTRIES

Upstream, China has chosen the solar photovoltaic sector to take a leading role in new energy production thanks to its vast desert land and abundant sunlight in western and northern areas. Downstream, China is betting on electric vehicles to facilitate the storage and consumption of new energy on a large scale. The results are impressive. China has had the biggest installed capacity for solar energy for seven consecutive years, accounting for 40% of global capacity. Sales of electric vehicles on the Chinese market amounted to around half of global EV sales in 2021. China also has the world's leading penetration rate for electric vehicles, exceeding 30% in September 2022, which means that currently out of every 10 cars sold in China, three are electric cars.

CHINESE COMPETITIVE ADVANTAGE IN NEW ENERGY IS MASSIVE

Chinese companies are deeply integrated across global industrial chains. For example, China dominates 80% of the global supply chain of solar PV products, and China manufactures more than half of the world's wind turbine components. The Chinese EV battery giant CATL alone accounts for more than 34% of the world' EV battery supply (vs. ~15% by Korean company LG in H1 2022).

The Chinese competitive advantage is built upon large-scale investment, large-scale production, large-scale consumption. Massive demand and investment stimulate large-scale production, which incentivizes new energy companies to increase innovation, improve efficiency, and reduce energy prices. Cheaper prices would further facilitate demand for new energy.

China's leading position in new energy industry cannot be achieved without further government support for decades.

HOW DOES THE GOVERNMENT SUPPORT INDUSTRY LEADERS IN CHINA?

In the early phase of sector development, the Chinese government is like a nanny, providing care to all players on almost every aspect to "activate" the market, in the form of strategic planning, protective regulations, generous subsidies and tax rebates, government-led investment, talent provision, etc.

Once the sector growth accelerates, the Chinese government gradually elevates the threshold for companies to receive subsidies to "incentivize" innovation and technology breakthrough. Companies with competitive edges appear at this stage.

In the fast development phase, the subsidies are gradually reduced to diminish companies' dependency on government supports so that companies are "forced to" (a word translated from mandarin) accelerate innovation and market expansion. Only companies with real competitive edges could survive. And the winners take all!

INVESTMENT CASE: EV SUBSIDIES

It is estimated that from 2009 to 2021, the Chinese government spent approximately $15 billion to subsidize the electric vehicle sector.

Before 2013, car producers were subsidized by a fixed number per car sold, regardless of models or product performance. Since 2014, the Chinese government has been elevating the criteria of subsidies (i.e., requiring higher battery performance) to incentivize innovation. Meanwhile, the amount subsidized per car was reduced by 75% from 2014 to 2021.

WHO ARE THE NEW ENERGY LEADERS?

To name a few, LONGi Green Energy (PV modules), CATL (EV batteries), BYD (EV and EV batteries), Sungrow Power (PV devices), Mingyang Intelligence (wind power devices), etc. Giant players from other sectors, such as Huawei, are tapping into new energy business as well, through strategic cooperation, direct investment, or joint ventures.

Competition is getting stronger, with more and more players in the domestic market. As a result, Chinese leaders are expanding overseas markets, especially in Europe, which is also aiming to ramp up the use of new energy and accelerate the green transition. More than 10 Chinese local EV brands have announced plans to go to Europe in the past 12 months, and fast movers have already arrived. For example, the German car rental company Sixt has committed to buy 100,000 electric vehicles from Chinese brand BYD from now to 2028, with a first batch to be available in Q4 2022. SAIC Motor, China's largest carmaker, exported 10,000 electric vehicles in September 2022 to Europe.

To enhance competitive advantages, Chinese leaders continue advancing innovation and technologies. For example, solar PV giant LONGi Green Energy established its hydrogen energy storage subsidiary in 2021; EV battery giant CATL aims to become the first company to mass-produce sodium-ion batteries in 2023.

CONCLUSION

The new energy industry is of strategic importance for China to improve its energy self-sufficiency and realize its transition from lower-end producers to higher-end producers. For China, developing new energy is a multi-year task. For Chinese new energy companies, there is still a long way to run, as new technology could keep transforming the industry. For investors, there could be a lot of growth opportunities to seize.

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